



State of Washington Department of Ecology
Cruise Ship Memorandum of Understanding, Cruise Operations in Washington State Inspection Report

Northwest Regional Office

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Inspection Date 09/13/2011	Permit Number NA	County King	Receiving Waters Marine Waters	Ecology Inspector Amy Jankowiak
Entry Time 9:02 am Exit Time 11:25 am	Photos Taken <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Samples Taken <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Inspection Announced <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Discharges to: <input checked="" type="checkbox"/> Surface Water <input type="checkbox"/> Ground Water <input type="checkbox"/> Dewater <input type="checkbox"/> POTW
Name and Location of Site Inspected: CARNIVAL SPIRIT, Carnival Cruise Line Pier 91 Seattle, Washington				Additional Participants/Inspectors: Matteo Cavallarin, Chief Officer
On-Site Representative(s): <i>Name/Title/Phone/e-mail</i> Prabhashan Kuttan, Safety, Environmental Health Officer SPENVOFF@CARNIVAL.COM				
Responsible Official(s): <i>Name/Title/Address/Phone/e-mail</i> Elaine Heldewier, Carnival Environmental Director 3655 NW 87 Avenue Miami, FL 33178-2428 (305) 599-2600 eheldewier@carnival.com				Other Facility Data: Notification made to Elaine Heldewier on September 6, 2011

Section A: Areas Evaluated

<input checked="" type="checkbox"/> Black/Gray Wastewater System	<input checked="" type="checkbox"/> Residual Solids	<input checked="" type="checkbox"/> Records/Reports	<input checked="" type="checkbox"/> Hazardous Waste/Solid Waste	<input checked="" type="checkbox"/> Sampling/Monitoring
<input checked="" type="checkbox"/> Discharge Locations	<input checked="" type="checkbox"/> Operation & Maintenance	<input checked="" type="checkbox"/> Sludge Handling/Disposal	<input checked="" type="checkbox"/> Oily Bilge Water	<input type="checkbox"/> Other

Section B: For Vessels Discharging ≥ 1 nm from Berth and ≥ 6 Knots Only [2.1.3(A)]

<input type="checkbox"/>	Schematics Match Black/Gray Wastewater System	
<input type="checkbox"/>	Operations as Described in Submitted Documentation	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
<input type="checkbox"/>	Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if High Turbidity Occurs	
	Turbidity or Equivalent: Last Calibration: Trigger Level for Early Alarm: Trigger Level for Shutdown: Recorded Turbidity/Equivalent Levels Above Triggers:	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
<input type="checkbox"/>	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	Disinfection Effectiveness Monitoring:	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
<input type="checkbox"/>	Disinfection System Operated and Maintained Properly	
	Disinfection System:	

NOT APPLICABLE

Section C: For Vessels Discharging Continuously [2-1.3(B)]

<input type="checkbox"/>	Schematics Match Black/Gray Wastewater System	
<input type="checkbox"/>	Operations as Described in Submitted Documentation	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Turbidity or Equivalent Monitoring	
<input type="checkbox"/>	Turbidimeter or Equivalent Monitoring Equipment Functioning Properly	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if High Turbidity Occurs	
	<u>Turbidity or Equivalent:</u> Last Calibration: Trigger Level for Early Alarm: Trigger Level for Shutdown: Recorded Turbidity/Equivalent Levels Above Triggers:	
<input type="checkbox"/>	Daily 24-hour Continuous Monitoring for Disinfection Effectiveness	
<input type="checkbox"/>	Disinfection Effectiveness Monitoring Equipment Functioning Properly	
	<u>Disinfection Effectiveness Monitoring:</u>	
<input type="checkbox"/>	Auto Shut Down or Operational Controls to Insure System Shut Down if Disinfection System Upset Occurs	
<input type="checkbox"/>	Disinfection System Operated and Maintained Properly	
	<u>Disinfection System:</u>	

NOT APPLICABLE

NOT APPLICABLE

Section D: General (Approved to Discharge)

<input type="checkbox"/>	No Discharges Within 1/2 Miles From Shellfish Beds/ Protocol (President's Point, Apple Tree Cove, Tyece Shoal, Middle Point (near Pt Townsend))	
<input type="checkbox"/>	Discharges Immediately Stopped When High Turbidity Occurs	
<input type="checkbox"/>	Discharges Immediately Stopped When Disinfection System Upset Occurs	
<input type="checkbox"/>	Immediate Notifications Made to WA Department of Health for Disinfection System Upset	
<input type="checkbox"/>	Sampling Conducted 2/month, 1/month in Seattle (BOD, TSS, Fecal Coliform, pH, Chlorine Residual)	
<input type="checkbox"/>	Whole Effluent Toxicity Testing 1 per 2 Years (homeported) or 1/40 Calls for Continuous	

Section E: General

<input checked="" type="checkbox"/>	Wastewater Discharge Records Review	Discharge records were reviewed (blackwater/graywater/residual solids) and are maintained properly. All discharges occurred outside of MOU waters with the exception of a discharge that was reported and took place on June 5, 2011. The discharge policy is to not discharge any treated or untreated blackwater or graywater in waters of the MOU, within 12 nm from land, in the OCNMS or in special areas.
<input checked="" type="checkbox"/>	Wastewater Discharges protocol per MOU and managed properly	The discharge protocol for wastewater includes setting out a plan at the beginning of the cruise season and then the bridge gives approval to the engineer on watch that they are in an area to discharge or that all discharge ports must be closed. The ports are closed about 1 hour before entering MOU waters. Discharges are then recorded both on the bridge log and the control room discharge log book. The Chief Officer verifies the records. The discharge ports are padlocked and

	there is a log for key usage. The ECR also has a light system to show which discharge ports are opened and closed.
<input checked="" type="checkbox"/> Residual Solids Managed Properly/Disposal Protocol per MOU	Sewage sludge and screenings are currently collected from the Triton blackwater treatment system, drummed and landed ashore.
<input checked="" type="checkbox"/> Hazardous Waste Managed Properly	Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. In Seattle, Waste Management and Clean Harbors handles the materials. Records were reviewed and appear to be managed properly.
<input checked="" type="checkbox"/> WA Hazardous Waste Guidelines Followed (Appendix vii)	Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. In Seattle, Waste Management and Clean Harbors handles the materials. Records were reviewed and appear to be managed properly.
<input checked="" type="checkbox"/> Solid Waste Managed Properly (zero garbage discharge)	Solid waste is managed properly. The various solid waste streams are collected, sorted, stored, and sent ashore or incinerated as appropriate. The garbage record book was reviewed and showed consistency with requirements. Glass is recycled and not discharged.
<input checked="" type="checkbox"/> Photo/X-Ray Waste Managed Properly (fluids, cartridges,...) and landed ashore	Waste from the photo processing is collected, drummed and offloaded as hazardous waste (no silver recovery on board). X-rays are done digitally.
<input checked="" type="checkbox"/> Dry-Cleaning Wastes and Byproducts (fluids, sludge, filter materials...) Managed Properly (PERC – haz waste – landed ashore)	No dry cleaning is done on board (therefore no by-products like PERC).
<input checked="" type="checkbox"/> Unused/Outdated Pharmaceuticals Managed Properly (safely disposed of)	Expired and unused medications are either offloaded back to the vendor or sent to the blackwater system prior to discharge. Narcotics are incinerated with witness.
<input checked="" type="checkbox"/> Fluorescent and Mercury Vapor Lamp Bulbs Managed Properly (prevent release of mercury)	Fluorescent lamps are sorted boxed and offloaded without crushing.
<input checked="" type="checkbox"/> Waste Reduction/Reuse/Recycling Opportunities Maximized (glass, cardboard, aluminum & steel cans)	Glass, aluminum, tin, scrap metal, plastics, some paper and cardboard, batteries, waste oil, and other materials are recycled. Reduction and reuse opportunities are broadly used to prevent the amount of waste. Recycling is offloaded in Seattle.
<input checked="" type="checkbox"/> Batteries Managed Properly (recycled, reclaimed, disposed of properly)	Batteries are collected, sorted and binned to be offloaded and recycled when possible.
<input checked="" type="checkbox"/> Incinerator Ash Managed Properly and minimized volume (haz waste segregation and annual testing)	Incinerator ash is offloaded in and tested annually. Results have passed. Incinerators are not to be used in MOU waters, >12nm, per protocol. Records showed consistency.
<input checked="" type="checkbox"/> Oily Bilge Water Managed Properly (<15 ppm, no visible sheen and underway)	Oily bilge is treated and with a Norddeotche oily water separator system. Discharges occur at less than 15 ppm and outside of MOU waters. A white box is used to prevent discharges of more than 15 ppm. Oily sludge is drummed and offloaded for proper disposal.
<input checked="" type="checkbox"/> Ballast Water Managed Properly (per Wash regs – reporting, treated or if open sea exchange >200 nm from outside EEZ, 50nm if not EEZ)	Full ballast exchanges only occur at sea and water is taken on in the Strait of Juan de Fuca when necessary. Records showed consistency.
<input checked="" type="checkbox"/> OCNMS rules and regs followed	No discharges occur in OCNMS waters per protocol and records review showed consistency.
Additional General Questions	
<input checked="" type="checkbox"/> How is deck runoff and hull cleaning handled (scuppers...) (non-toxic/phosphate free cleaners, biodegradable)	Deck runoff goes directly overboard. Training is conducted with staff on managing materials on the deck. Hull cleaning is not done while in Seattle.
<input checked="" type="checkbox"/> How is maintenance performed on the outside of the vessel (paint chipping, painting, etc)	The staff captain oversees any outside vessel maintenance. They have a strict policy to promote safety and the bridge clears this. A canvas with magnets to the ship is used at the bottom of the vessel and the port. Tarps are used. Outside vessel maintenance does not occur while in Seattle due to busy onloads and offloads.
<input checked="" type="checkbox"/> Sculleries and Galleys – type of detergents and degreasers used (phosphate free and non-toxic)?	Phosphate free, non-toxic cleaners are used in the galleys. Grease is offloaded.
<input checked="" type="checkbox"/> How are food waste discharges handled (prevention of erroneous materials)?	Food waste is sorted prior to going into the pulpers. Solid food waste is discharged outside of MOU waters after pulping. Some materials are incinerated. Galley water goes to the graywater collection tanks. Used cooking oil is re-used as fuel.

<input checked="" type="checkbox"/> Medical sinks/floor drains, chem. stor areas wastes go where (plugged, blackwater, bilge)?	Medical floor drains go to the blackwater collection tanks. Biohazardous wastes are collected and incinerated. Sharps are off-loaded with hazardous waste.
<input checked="" type="checkbox"/> Where is pool and spa water discharged? Dechlorinated/debrominated and underway?	Pool water is discharged out at sea, outside of MOU waters. Jacuzzi water is discharged to the graywater collection tanks daily.
<input checked="" type="checkbox"/> What type of fuel is used and percent sulfur content?	MGO of approximately 0.0008% is used while in the Port of Seattle (incentive) and approximately 2.3%-2.5% is used otherwise.

Other:

Section F: Sampling Results

Parameter	Results
Biochemical Oxygen Demand 5-Day (BOD ₅)	NA
Total Suspended Solids (TSS)	NA
Fecal Coliform	NA
Residual Chlorine	NA
pH	NA
Ammonia, Nitrogen	NA

Section G: Summary of Findings/Comments

Introduction

Amy Jankowiak, Washington State Department of Ecology (Ecology) Northwest Regional Office, Water Quality Program (NWRO-WQ) conducted the inspection of the Carnival Cruise Line CARNIVAL SPIRIT on September 13, 2011. The main contact on board the CARNIVAL SPIRIT was Prabhashan Kuttan, Safety Environmental Health Officer for the CARNIVAL SPIRIT. Prior notification of the visit was given on September 6, 2011 for security protocol. The purpose of the inspection was to evaluate compliance with the *Memorandum of Understanding Cruise Operations in Washington State (MOU)*, as amended and to follow up on an unauthorized discharge that was reported by Carnival Cruise Line and occurred on September 5, 2011. The CARNIVAL SPIRIT is not approved to discharge in MOU waters. The vessel has not been discharging and is holding effluent until outside MOU waters, with the exception of the one unauthorized discharge.

The CARNIVAL SPIRIT was built in 2001 and is 963 feet long with an estimated capacity of 2680 passengers and 961 crew.

The CARNIVAL SPIRIT is scheduled for 19 port calls in Seattle and conducts one week cruises to Alaska on Tuesdays between May 10, 2011 and September 13, 2011.

Inspection

I arrived and boarded the ship (photo #01) at about 9:02 am and began with introductions and a plan for the day with Prabhashan Kuttan, the Safety, Health and Environmental Officer in the Engine Control Room (ECR) (photo #02). We discussed various waste streams and discharge protocols. I also met with Matteo Cavallarin, Chief Officer to discuss the unauthorized discharge event and discharge protocols. We then reviewed the various discharge and environmental records. We then toured the Triton blackwater treatment system, the Rochem AWTS, the non-working blackwater AWTS, and the oily water separator. We then viewed the garbage and recycling area, the hazardous waste storage, and then went to the bridge (photo #29) to review protocols, navigation (photo #28) and ballast management. The inspection was then finalized with a debriefing and we disembarked the vessel at about 11:25 am.

Discharge Types and Protocols:

The discharge policy is to not discharge any treated or untreated blackwater or graywater in waters of the MOU, within 12 nm from land, in the Olympic Coast National Marine Sanctuary (OCNMS) or in special areas. The discharge protocol for wastewater includes setting out a plan at the beginning of the cruise season and then the bridge gives approval to the engineer on watch that they are in an area to discharge or that all discharge ports must be closed. The ports are closed about 1 hour before entering MOU waters. Discharges are then recorded both on the bridge log and the control room discharge log book. The Chief Officer verifies the records. The discharge ports are padlocked and there is a log for key usage. The ECR also has a light system (photo #03) to show which discharge ports are opened and closed.

For blackwater and graywater, the latitude and longitude coordinates are recorded in the *Sewage and Graywater Discharge Record Book* and in the deck log. The date, time and location of both the start and the stop of the discharges are recorded, along with port location, effluent type, and volumes. All wastewater discharge records that were reviewed appeared to be in compliance with the MOU, with the exception of the September 5, 2011 discharge discussed below. There were also a couple of entries where the latitude readings appear to be entered in error.

The vessel includes three different types of wastewater treatment. There is a traditional marine sanitation device, Triton, which is used for blackwater treatment and includes screening, aeration, settling and chlorination (photos #05, #06, and #07). There is an advanced wastewater treatment system (AWTS) for blackwater (photos #15, #16, #17, #18, #19 and #20) that has not been working and is not being used at all. And there is an AWTS for accommodation graywater only that is a Rochem low pressure reverse osmosis system (photos #08, #09, #10, and #11) with UV disinfection (photo #12) that is only used when in special areas of Alaskan waters and is not used at all while in MOU waters. Laundry, galley and other graywater does not go through any wastewater treatment system and is held separately and then discharged outside of MOU waters. No discharges occur in the Olympic Coast National Marine Sanctuary. Medical floor drains go to the blackwater collection tanks.

Screenings from the Triton blackwater MSD are collected, drummed and offloaded.

Oily bilge is treated and with a Norddeotche oily water separator system (photo #21). Discharges occur at less than 15 ppm and outside of MOU waters. A white box (photo #22) is used to prevent discharges of more than 15 ppm. Oily sludge is drummed and offloaded for proper disposal.

Full ballast exchanges only occur at sea and water is taken on in the Strait of Juan de Fuca when necessary. Records showed consistency.

Pool water is discharged out at sea, outside of MOU waters. Jacuzzi water is discharged to the graywater collection tanks daily.

Food waste is sorted prior to going into the pulpers. Solid food waste is discharged outside of MOU waters after pulping. Some materials are incinerated. Records reviewed were consistent with this protocol. Galley water goes to the graywater collection tanks. Used cooking oil is re-used as fuel. Galley staff are trained on preventing materials from entering the pulpers other than soft foods. A person is assigned to double check.

Deck runoff goes directly overboard. Training is conducted with staff on managing materials on the deck. Hull cleaning is not done while in Seattle. The staff captain oversees any outside vessel maintenance. They have a strict policy to promote safety and the bridge clears this. A canvas with magnets to the ship is used at the bottom of the vessel and the port. Tarps are used. Outside vessel maintenance does not occur while in Seattle due to busy onloads and offloads.

No dry cleaning is done on board (therefore no by-products like PERC). If dry cleaning is necessary, it is done with an on-land vendor while in port.

Waste from the photo processing is collected, drummed (photo #26) and offloaded as hazardous waste (no silver recovery on board). X-rays are done digitally.

Hazardous waste is collected, sorted, labeled and stored and then offloaded for proper disposal. In Seattle, Waste Management and Clean Harbors handles the materials. Off-loads occur about once every two weeks or once a month. Records were reviewed and appear to be managed properly. Hazardous waste materials include oily rags, used cartridges and filters, paints, batteries (some are reused or recycled), waste oil, aerosols (punctured), and sharps. Depending on where materials are offloaded, some materials are considered universal waste. Fluorescent lamps are sorted, boxed and offloaded. Bulbs are not crushed on board.

Biohazardous wastes are collected and incinerated. Sharps are off-loaded with hazardous waste. Expired and unused medications are either offloaded back to the vendor or sent to the blackwater system prior to discharge. Narcotics are incinerated with witness.

Solid waste (garbage, recyclables, etc.) is managed properly. The various solid waste streams are collected, sorted, stored, and sent ashore or incinerated as appropriate. The garbage record book was reviewed and showed consistency with requirements. Glass is recycled (photo #23) and not discharged.

Glass, aluminum, tin, scrap metal, some plastics, some paper, cardboard and other materials are recycled (photo #27). Reduction and reuse opportunities are broadly used to prevent the amount of waste.

Incinerator ash is offloaded and tested annually. Results have passed. Incinerators (photo #25) are not to be used in MOU waters, >12nm, per protocol. Records showed consistency. Some food waste is incinerated along with some cardboard (photo #24), biohazardous waste, narcotics and other materials.

MGO of approximately 0.0008% is used while in the Port of Seattle (incentive) and approximately 2.3%-2.5% is used otherwise.

Passengers are presented with environmental policies on the first day of the cruise and staff goes through employee training which includes how to separate wastes.

Black water Triton MSD:

There are four Triton units on board. Blackwater is collected by vacuum to collection tanks and then to a feed unit that disperses the blackwater to the four units. Each unit includes screening, aeration, settling and chlorination. Analysis is done for DO, solids and chlorine to assure proper operations and dosing.

Graywater Rochem AWTS (only used in AK waters):

The Rochem low pressure reverse osmosis system is used for accommodation graywater while in Alaskan waters. It includes collection, screening with a SWECO filters, reverse osmosis filtration, and ultraviolet light disinfection.

Unauthorized Discharge Event of September 5, 2011:

On September 6, 2011, Ecology received a report of an unauthorized discharge of untreated graywater into state waters (and MOU waters) that took place on the Carnival Spirit on September 5, 2011. The discharge occurred within the waters covered by the MOU for approximately 12 minutes (16:18hrs-16:30hrs) and consisted of approximately 5.7 metric tons (1870 gallons) at the following positions:

Start: Lat 48° 28.6'N, Long 124° 48.6'W

Stop: Lat 48° 28.2'N, Long 124° 43.1'W

The volume is a conservative worst case scenario estimate as it is possible that a much smaller volume was actually discharged. The discharge of graywater was from various collection tanks and not from any treatment system. The graywater source was accommodation and galley graywater that was discharged from the collection system (seven collection tanks) (photos #13 and #14) when the tanks reach the high level as the overboard valves were open. The discharge was not near any designated shellfish growing areas (Appendix X of the MOU). The ship is instructed to discharge outside of MOU waters, more than 12 nautical miles from the nearest land, and more than 12 nm from restricted areas, the OCNMS and other prohibited areas per company policy.

The incident investigation root cause, as reported in the follow-up written report dated September 13, 2011, identified inadequate follow-up procedures by the Deck and Engine Departments. The internal investigation revealed that the Deck personnel failed to fully review the engine log entries. The log entry for the time of the incident showed only the black water valve was closed instead of both the black and gray water valves closed as required. The discharge was discovered when the Chief Engineer arrived in the Engine Control Room and requested the logs. The 2nd Engineer on watch informed the Chief Engineer that the gray water discharge was still taking place. The Chief Engineer realized that the ship was in a restricted area and took all measures to stop the discharge immediately. A review of procedures was conducted immediately by the Captain and Chief Engineer.

During the inspection, the incident was discussed with the Chief Engineer and the Environmental Officer. The staff were not aware of any other similar incident occurring before and provided the details of the event as described above. The Chief Officer added that when transiting in this area and when the vessel is moving quickly, the distance of being within 12 nautical miles occurred very quickly and that the Engineer on Watch has a lot of duties. I also discussed looking at various procedures to ensure that this does not occur again including the possibility of having the discharge port keys in the hands of one or two people on the vessel that would need to be present to allow discharges as has been done on other ships and cruise lines.

The MOU requires immediate self-reporting of any non-compliance. The initial report was made within 24 hours of discovery after reviewing the location of the discharge and the requirements of the MOU.

The discharge of untreated graywater into Washington State waters is a violation of Chapter 90.48.080 Revised Code of Washington (RCW) and Chapter 173-201A Washington Administrative Code (WAC) as well as a violation of the MOU.

Conclusions and Recommendations

The practice of sending expired and unused medications to the blackwater system is not per CLIA guidelines or the MOU.

Expired and unused medications should be landed ashore or incinerated. Ecology recommends that the cruise line review its policies on the handling of expired and unused medications and comply with all regulations and guidelines.

The discharge of untreated graywater into Washington State waters is a violation of Chapter 90.48.080 Revised Code of Washington (RCW) and Chapter 173-201A Washington Administrative Code (WAC) as well as a violation of the MOU. It is recommended that the policies and procedures for opening and closing discharge valves be reviewed and that steps are taken to ensure that no further unauthorized discharges occur.

Attachments:

Photographs

Discharge Records

Follow-up written report dated September 13, 2011

Copies to:

Prabhashan Kuttan, SEH CARNIVAL SPIRIT

Matteo Cavallarin, Chief Officer, CARNIVAL SPIRIT

Elaine Heldewier, Carnival Environmental Director

Mark Toy, Department of Health

Greg Wirtz, NWCCA

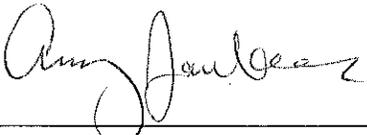
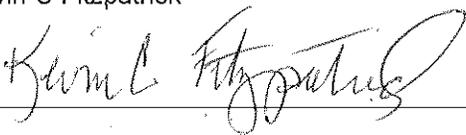
Mark Henley, Ecology

Kevin Fitzpatrick, Ecology

Amy Jankowiak, Ecology

Central Files: Carnival Cruise Line – CARNIVAL SPIRIT; WQ 6.1

Section H: Signatures

<u>Name and Signature of Inspector:</u>	<u>Agency/Office/Telephone:</u>	<u>Date</u>
Amy Jankowiak 	Department of Ecology Northwest Regional Office Water Quality Program Municipal Compliance Specialist 425-649-7195	10/24/11
Kevin C Fitzpatrick 	Department of Ecology Northwest Regional Office Water Quality Section Manager 425-649-7033	10/25/11

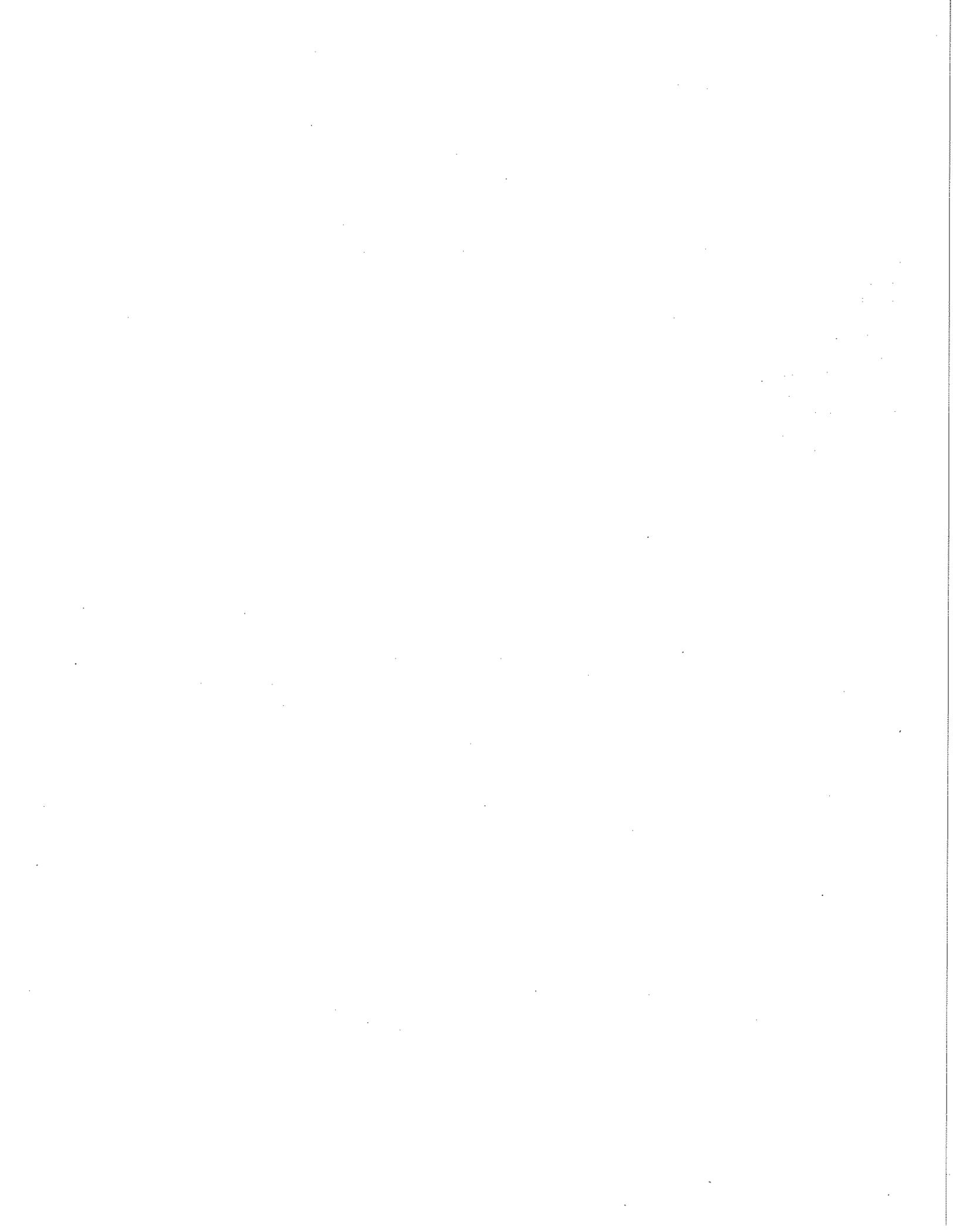




PHOTO #:01 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130013
DESCRIPTION: CARNIVAL SPIRIT VESSEL

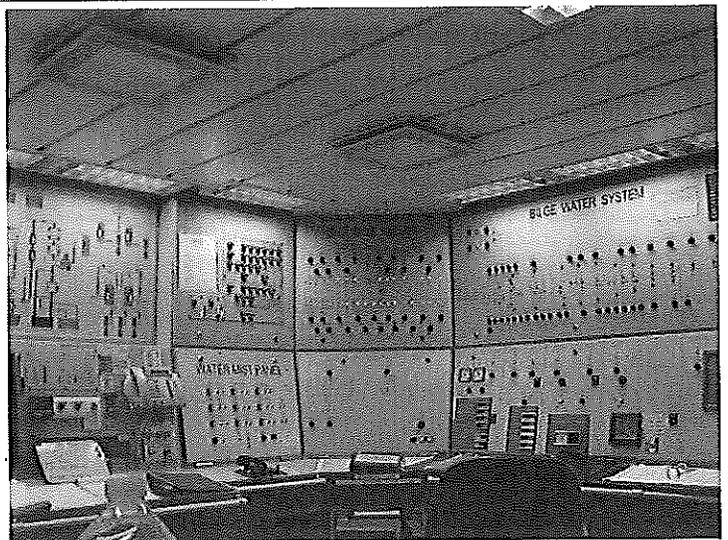


PHOTO #:02 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130017
DESCRIPTION: ENGINE CONTROL ROOM

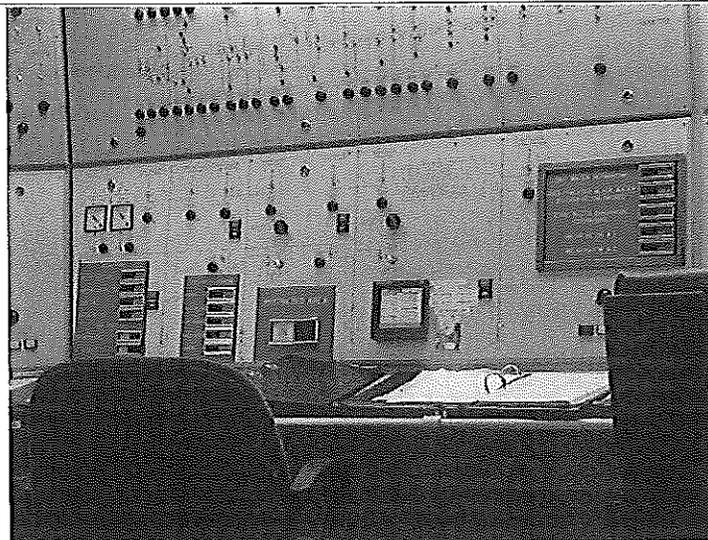


PHOTO #:03 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130019
DESCRIPTION: ENGINE CONTROL ROOM VALVE MONITORING



PHOTO #:04 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130021
DESCRIPTION: MARINE SANITATION DEVICE

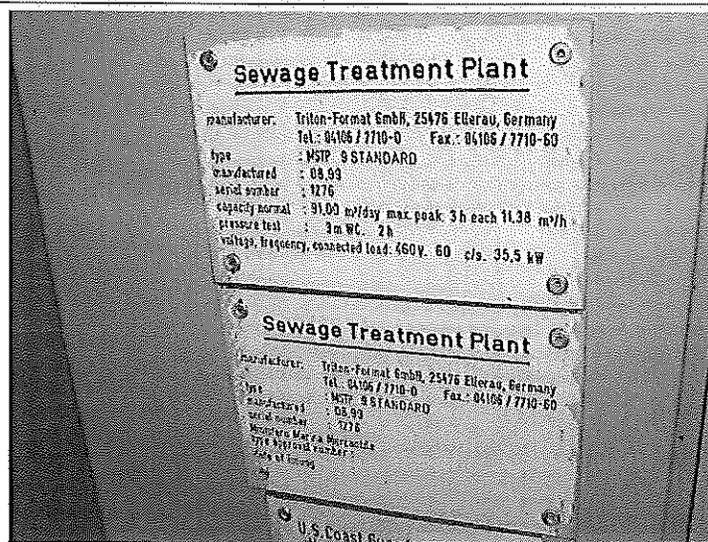


PHOTO #:05 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130022
DESCRIPTION: MARINE SANITATION DEVICE - TRITON

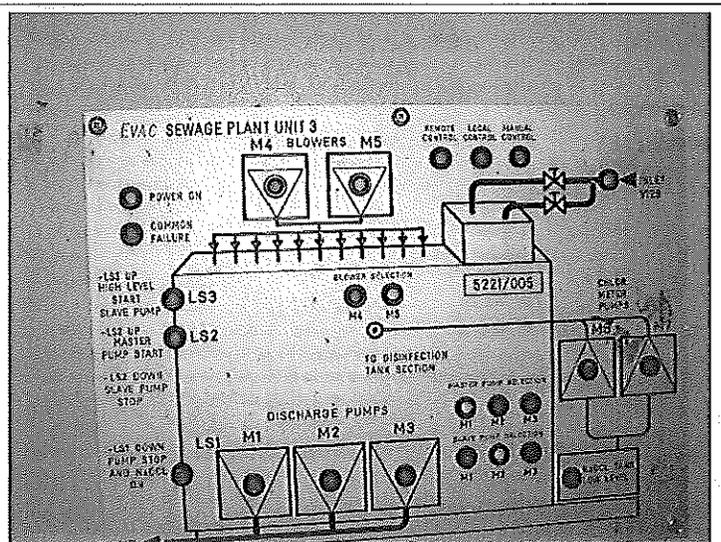


PHOTO #:06 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130023
DESCRIPTION: MARINE SANITATION DEVICE SCHEMATIC

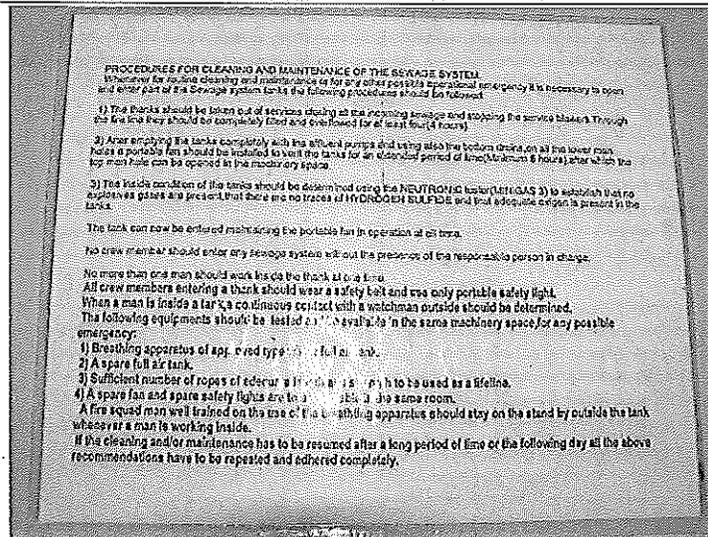


PHOTO #:07 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130024
DESCRIPTION: MARINE SANITATION DEVICE PROCEDURES AND MAINTENANCE POSTING

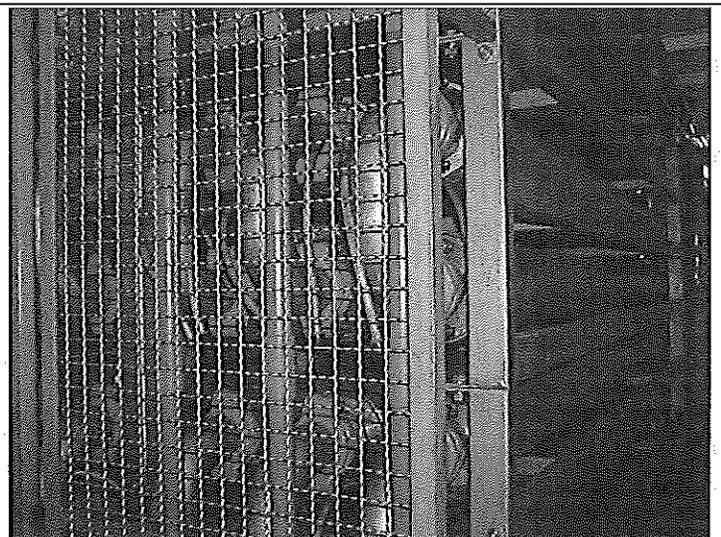


PHOTO #:08 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130025
DESCRIPTION: ROCHEM AWTS FOR GRAYWATER FILTERS

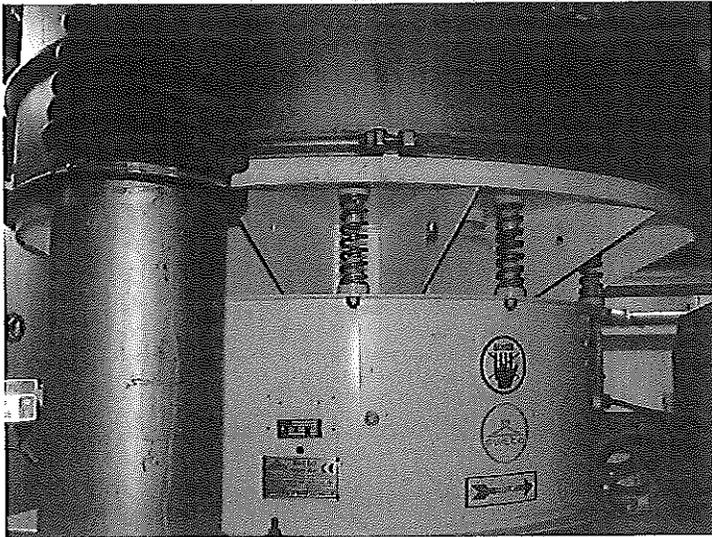


PHOTO #:09 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130026
DESCRIPTION: ROCHEM AWTS FOR GRAYWATER SWECO
FILTER

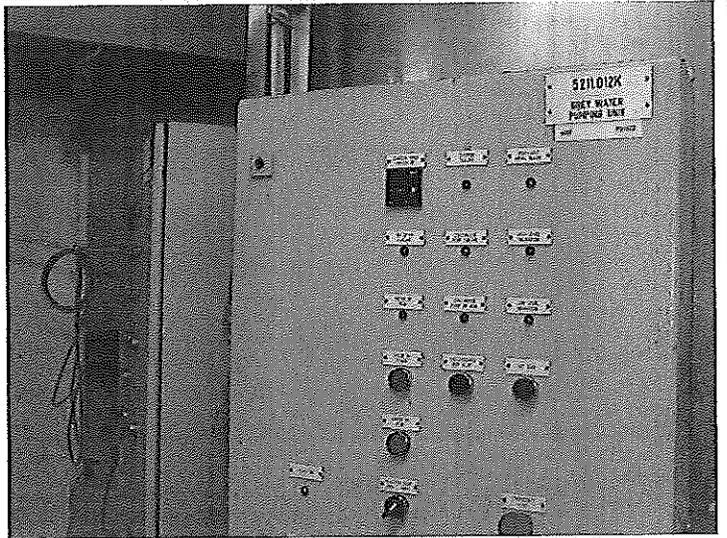


PHOTO #:10 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130027
DESCRIPTION: ROCHEM AWTS GRAYWATER COLLECTION TANK

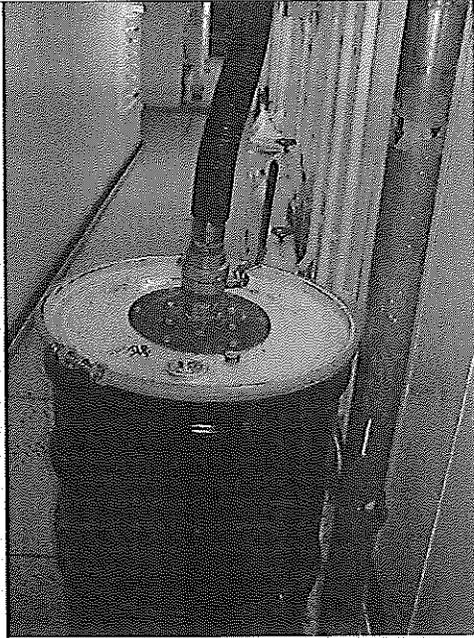


PHOTO #:11 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130028
DESCRIPTION: ROCHEM AWTS SWECO SOLIDS COLLECTION

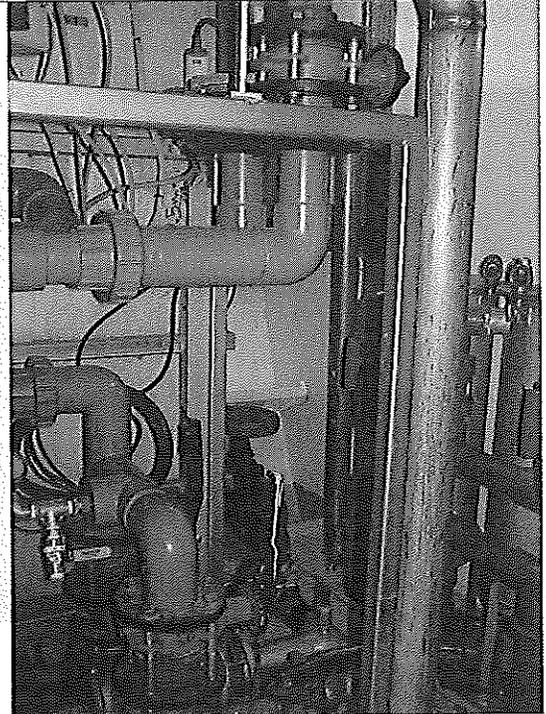


PHOTO #:12 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130033
DESCRIPTION: ROCHEM AWTS UV DISINFECTION

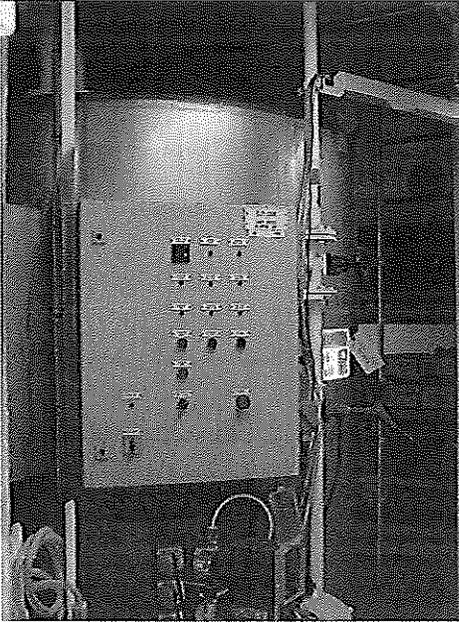


PHOTO #:13 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130034
DESCRIPTION: GRAYWATER COLLECTION TANK (1 OF 7)



PHOTO #:14 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130035
DESCRIPTION: GRAYWATER COLLECTION TANK (2 OF 7)

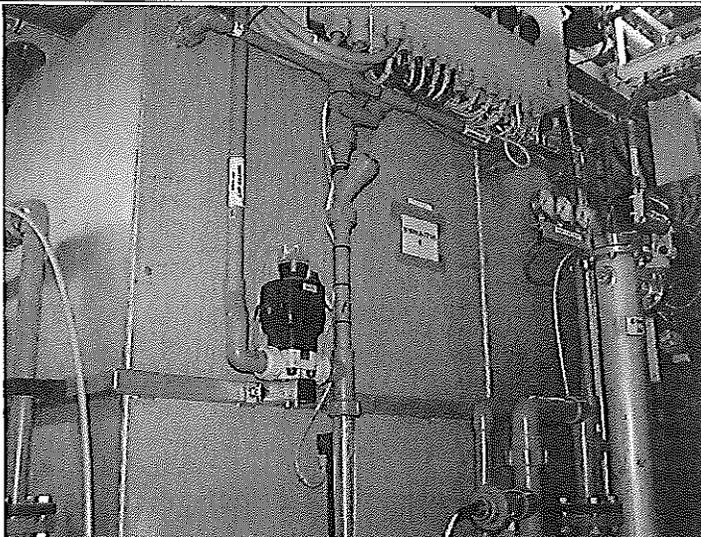


PHOTO #:15 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130029
DESCRIPTION: AWTS FOR BLACKWATER (NOT WORKING)

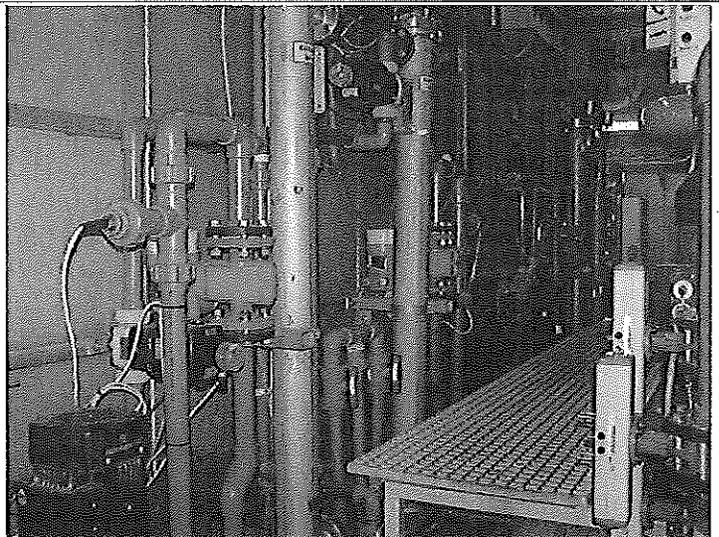


PHOTO #:16 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130030
DESCRIPTION: AWTS FOR BLACKWATER (NOT WORKING)

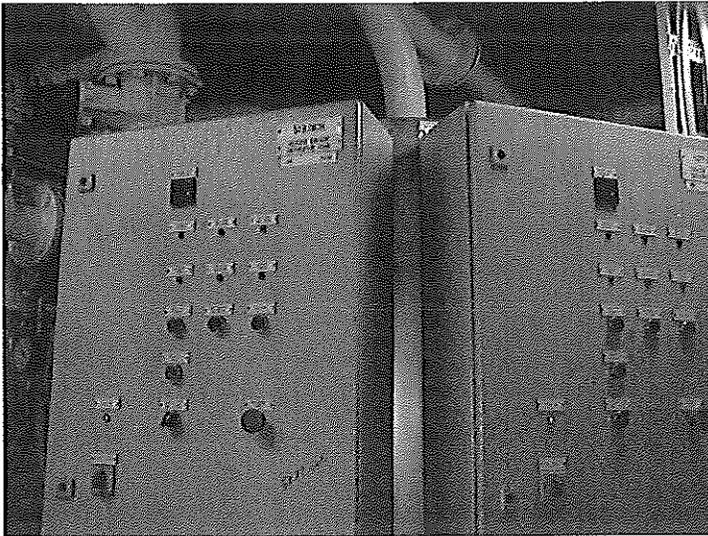


PHOTO #:17 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130031
DESCRIPTION: AWTS FOR BLACKWATER (NOT WORKING)

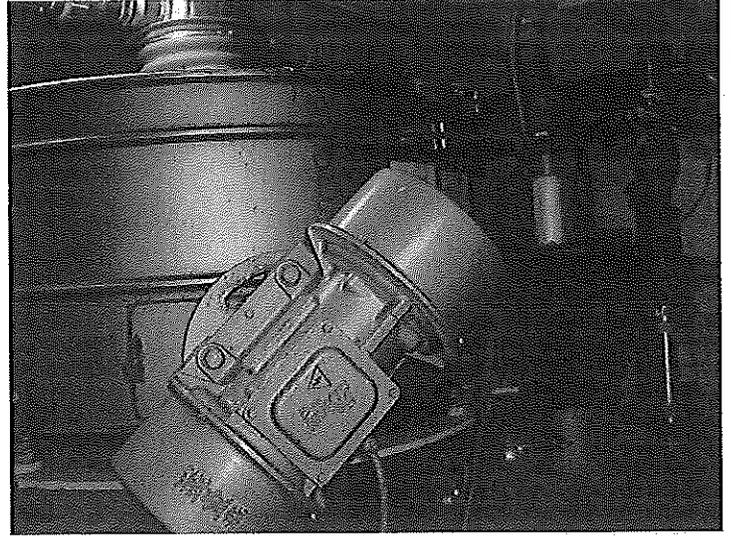


PHOTO #:18 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130032
DESCRIPTION: AWTS FOR BLACKWATER (NOT WORKING)

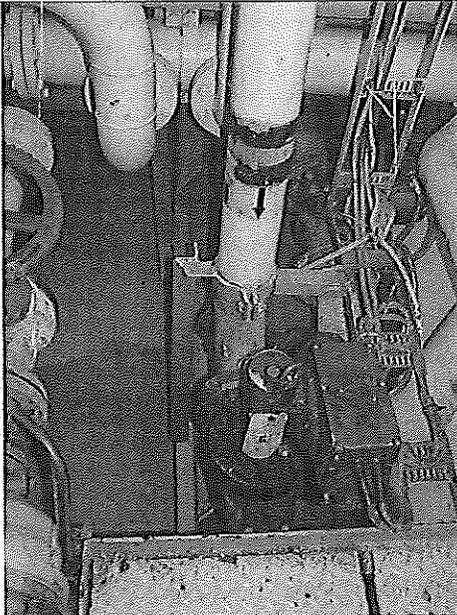


PHOTO #:19 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130036
DESCRIPTION: DISCHARGE PORT FOR BLACKWATER

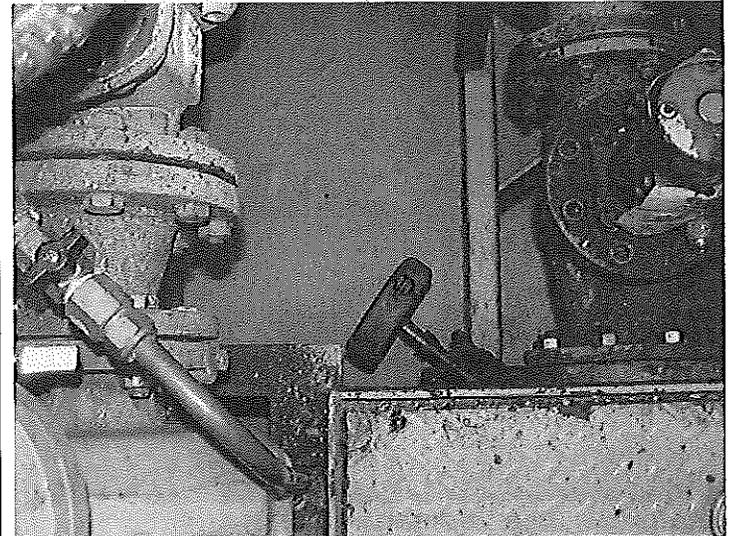


PHOTO #:20 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130037
DESCRIPTION: DISCHARGE PORT FOR BLACKWATER

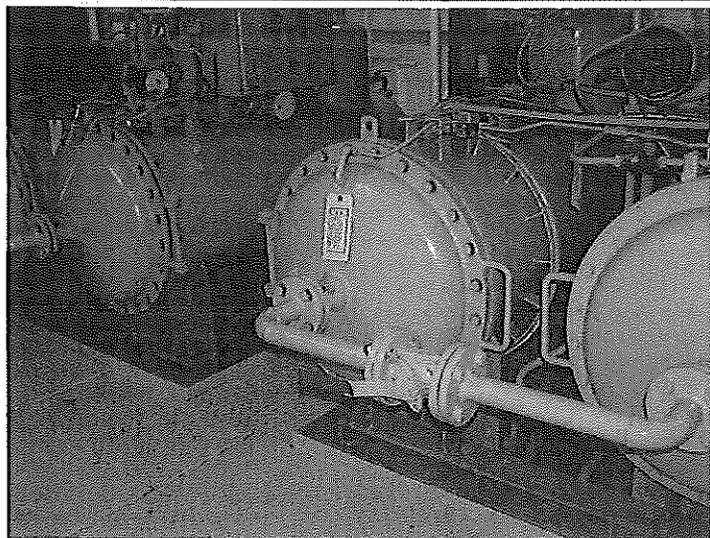


PHOTO #:21 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130039
DESCRIPTION: OILY WATER SEPARATOR SYSTEM FOR OILY
BILGE WATER

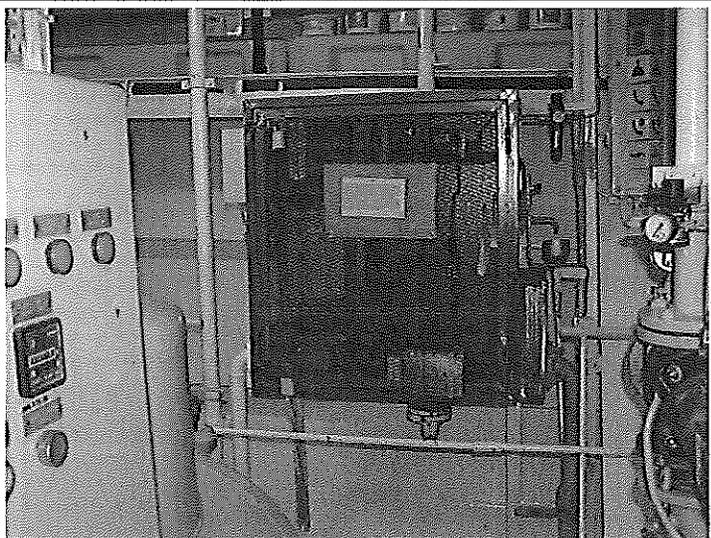


PHOTO #:22 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130040
DESCRIPTION: OWS WHITE BOX

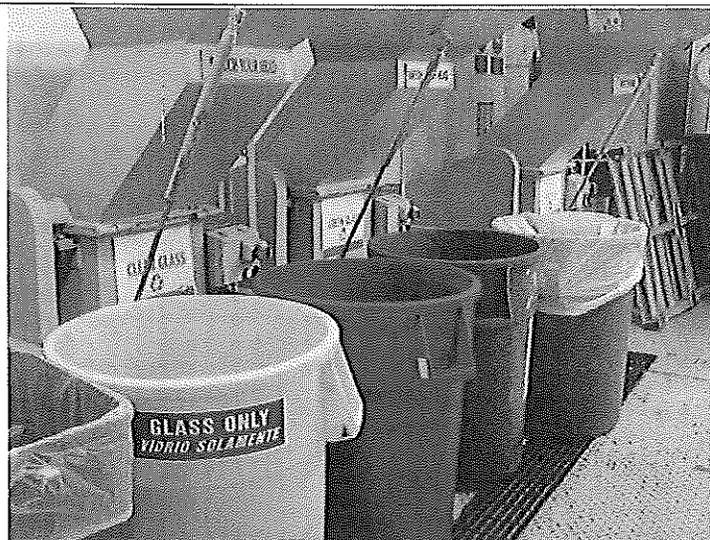


PHOTO #:23 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130041
DESCRIPTION: GARBAGE ROOM - GLASS SORTING/CRUSHING

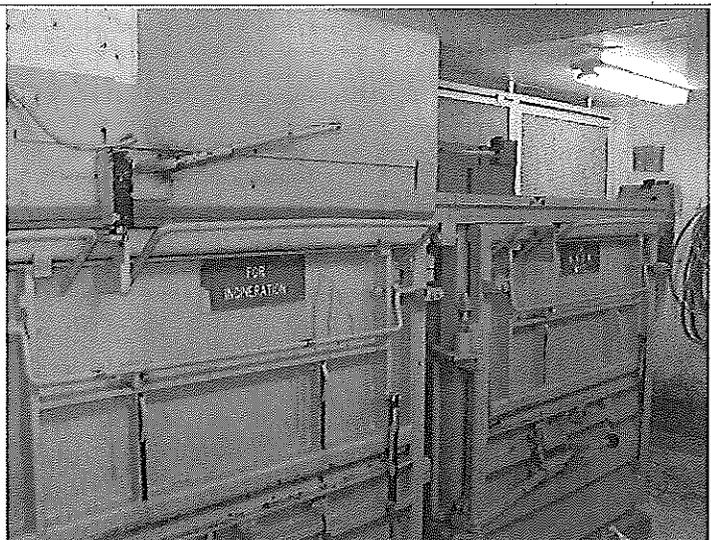


PHOTO #:24 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130043
DESCRIPTION: CARDBOARD COMPACTOR FOR INCINERATORS

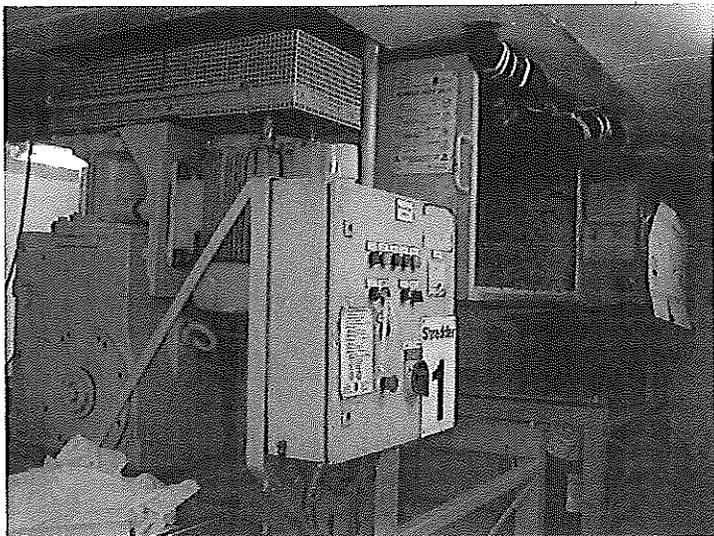


PHOTO #:25 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130044
DESCRIPTION: LOADING TO INCINERATORS

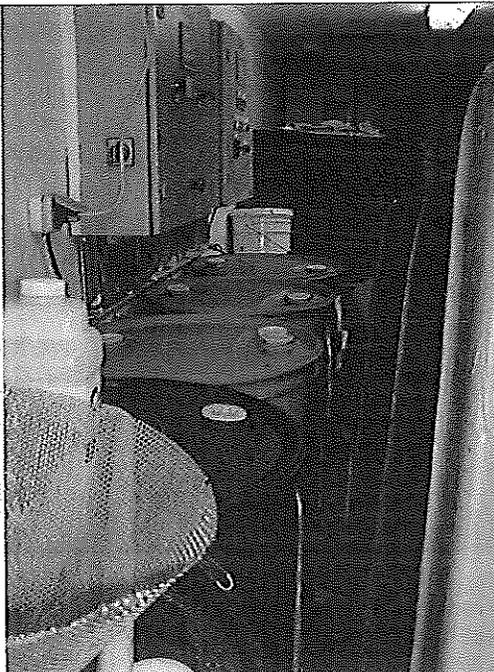


PHOTO #:26 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130045
DESCRIPTION: PHOTO WASTE

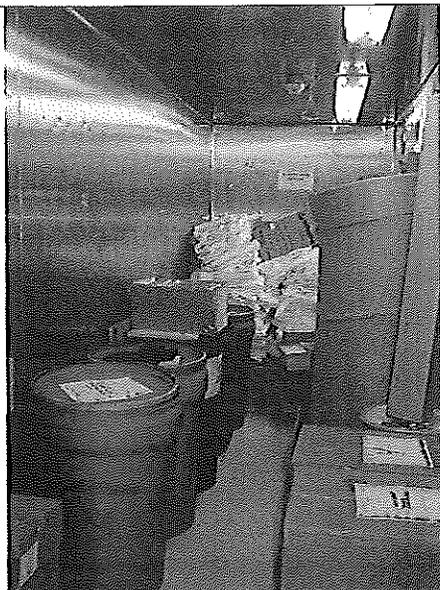


PHOTO #:27 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130046
DESCRIPTION: RECYCLE MATERIALS

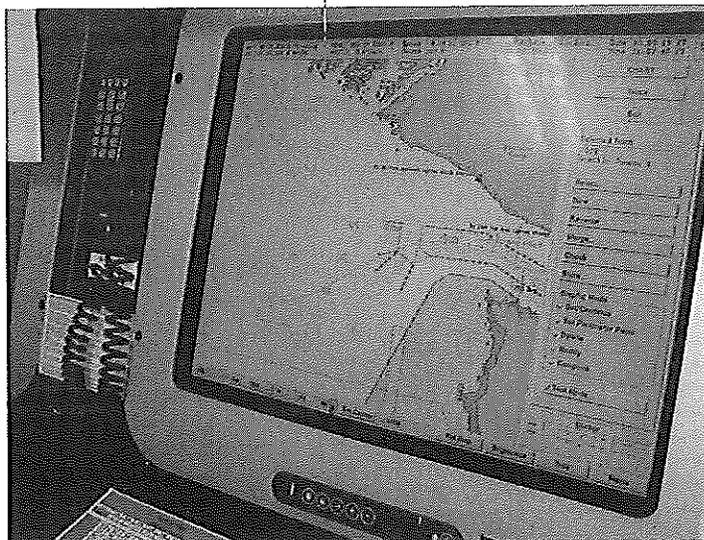


PHOTO #:28 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE No.:P9130047
DESCRIPTION: BRIDGE - NAVIGATION

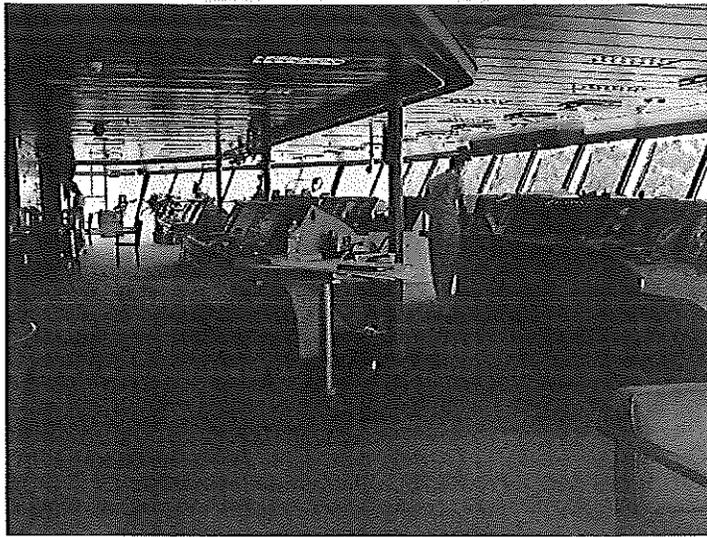


PHOTO #:29 DATE: SEPTEMBER 13, 2011
TAKEN BY: AMY JANKOWIAK FILE NO.:P9130048
DESCRIPTION: BRIDGE

Carnival

September 13, 2011

Ms. Amy Jankowaik
Department of Ecology
Northwest Regional Office Water Quality Program
3190 160th Avenue SE
Bellevue, WA 98008

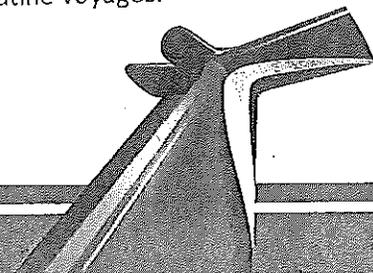
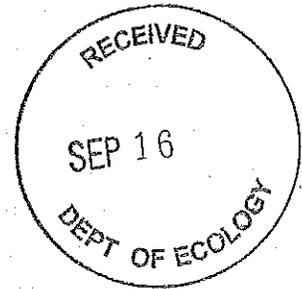
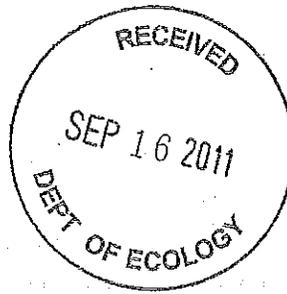
Ref: Gray Water Discharge Report ERTS-629014

Dear Ms. Jankowaik,

On September 5, 2011, the Carnival Spirit had an accidental discharge of untreated gray water in waters covered by the Memorandum of Understanding for Cruise Ship Operations in Washington State dated March 2011 (MOU). In accordance with Section 2.1.1 and Section 9 of the MOU, I notified the Department of Ecology on September 6, 2011 at 13:25 hours on the ship's behalf after confirming and reviewing the location of discharge and the requirement to report under Section 9 of the MOU. During that telephone conversation, you asked me to provide this written report on behalf of Carnival Cruise Lines (CCL).

Based on CCL's incident investigation, the discharge that occurred within the waters covered by the MOU lasted for approximately 12 minutes, from 16:18hrs (Position. Lat: 48° 28.6'N, Long: 124° 48.6'W) to 16:30hrs (Position. Lat: 48° 28.2'N, Long: 124° 43.1'W), and consisted of approximately 5.7 metric tons as worst case scenario. At the time of the incident the vessel was not discharging from any gray water holding tanks. The gray water that was discharged during the time of the incident was from the various collecting tanks. Each of the collecting tanks receives gray water from different draining pipes from the accommodation spaces and from the galley and then is discharged overboard when the collecting tanks reach the high level as the overboard valve was open. The accommodation space collecting tanks included are 5212-001, 5212-003, 5212-005, 5212-006 and 5212-007. The galley collecting tanks included are 5212-002 and 5212-004. The location of the discharge was over 100 NM away from any of the 2011 Bivalve Shellfish Beds, referenced in Appendix X of the MOU.

Onboard the ship is an advanced waste water treatment system (AWTS) for which the ship currently maintains a permit from the Alaska Department of Environmental Conservation. In accordance with CCL's policy, the ship is instructed to always discharge outside MOU waters; more than 12 NM from the nearest land; and more than 12 NM from restricted areas which are: IMO Special Areas where regulations are in effect, boundary line of U.S. National Marine Sanctuaries, and areas indicated as prohibited on nautical charts, in piloting references, notices to mariners or similar nautical publications used in navigation or when otherwise advised by the CCL considering non-routine voyages.



Carnival

The incident investigation root cause analysis identified inadequate follow-up on procedures by the Deck and Engine Departments. The investigation revealed that the Deck personnel failed to fully review the engine log entries. The log entry for the time of the incident showed that only the black water valve was closed instead of having both the black and gray water valves closed as required. The gray water discharge was identified when the Chief Engineer arrived in the Engine Control Room and requested the completed gray and black water discharge log and the 2nd Engineer on watch informed the Chief Engineer that the gray water discharge was still taking place, noting that the log would be completed on stopping the discharge. The Chief Engineer realized that the ship was in a restricted area and took all measures to stop the discharge of gray water immediately.

Immediate corrective actions were taken, which included a review of Alaska Season procedures with Deck and Engine personnel conducted by Captain and Chief Engineer.

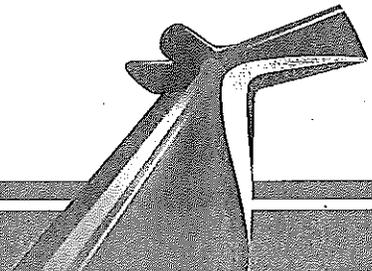
CCL's policy is that before and during the Alaskan Season, all environmental requirements; including the MOU, must be reviewed by personnel that deal with discharge operations. CCL always strives to go over and beyond environmental requirements, which include preserving the marine environment and in particular the pristine condition of the waters upon which our vessels sail. We are committed to pollution prevention, regulatory compliance and continuous improvement of our environmental programs. If you have any other questions or concerns, please feel free to contact Ben Fisch, CCL Environmental Supervisor at (305) 599-2600 ext. 65806 or bfisch@carnival.com.

Regards,



Elaine Heldewier

Carnival Environmental Director



Graywater and Blackwater Discharge Log For Ships In Alaskan Cruise Season

Carnival Cruise Lines
SMS Env. Manual

Ship Name: DEAZ/S Carnival Spirit

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	September 4, 2011	18:20	54° 00.5' N	130° 59.5' W	GW	21.9 Knt	7324 V 010 7324 V 022 5214 V 026 5214 V 025	870.1	654.21	2nd Engine Officer Sinisa Rosic <i>[Signature]</i>
STOP	September 5, 2011	16:30	48° 28.2' N	124° 43.1' W						<i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer : Andrea Pascale

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	September 4, 2011	18:20	54° 00.5' N	130° 59.5' W	GW	21.9 Knt	5214 V 025	129.2	97.14	2nd Engine Officer Sinisa Rosic <i>[Signature]</i>
STOP	September 5, 2011	16:30	48° 28.2' N	124° 43.1' W						<i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer : Andrea Pascale

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START										
STOP										

REMARKS

Chief Engineer's Signature / Date *[Signature]* / Sept 05 2011

Master's Signature / Date *[Signature]* / 05 Sep 2011

Carnival Cruise Lines
SMS Env. Manual

Graywater and Blackwater Discharge Log For Ships In Alaskan Cruise Season

Ship Name: DEAZIS Carnival Spirit

Rev. Date 1 April 2005

Rev.00

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 23, 2011	22:00	48° 26.4' N	124° 28.8' W	Gray / Black	19.6 Knt	7324 V 010 7324 V 022	755.3	572.21	2nd Engine Officer Marco Ruello
STOP	August 24, 2011	20:00	53° 56.1' N	130° 58.9' W	GW		5214 V 026 5214 V 025			2nd Engine Officer Raffaele Cinque
REMARKS	Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj									
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 23, 2011	22:00	48° 26.4' N	124° 28.8' W	Gray / Black	19.6 Knt	5214 V 025	266.2	201.67	2nd Engine Officer Marco Ruello
STOP	August 24, 2011	20:00	53° 56.1' N	130° 58.9' W	GW					2nd Engine Officer Raffaele Cinque
REMARKS	Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj									
DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 23, 2011	23:55	48° 36.2' N	125° 25.9' W	Gray / Black	19.60Knt	5224 V 242 5224 V 243	172.3	165.69	2nd Engine Officer Marco Ruello
STOP	August 24, 2011	17:15	53° 02.0' N	130° 33.4' W	TS		5224 V 244 5224 V 245			2nd Engine Officer Raffaele Cinque
REMARKS	Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj									
Chief Engineer's Signature / Date		Master's Signature / Date								
<i>[Signature]</i> / AUG 25, 2011		<i>[Signature]</i> / 25 Aug 2011								

Document Management
Doc. Name: Alaska BW GW Disch Log
Responsibility: Engine Watch Leader
Storage: Binder in Engine Control Room / C/Eng. File System
Retention: Duration of Probation. Thereafter 60 Months

Ship Name: DEAZ/S Carnival Spirit

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 9, 2011	22:10	48° 27.2' N	124° 31.5' W	GW	21.40 Knt	7324 V 010 7324 V 022 5214 V 026 5214 V 025	1022.0	789.21	2nd Engine Officer Marco Ruello <i>[Signature]</i>
STOP	August 10, 2011	19:45	53° 57.9' N	130° 58.9' W	GW					2nd Engine Officer Raifaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj

Predrag Pravdica

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 9, 2011	22:10	48° 27.2' N	124° 31.5' W	GW	21.40 Knt	5214 V 025	248.8	192.12	2nd Engine Officer Marco Ruello <i>[Signature]</i>
STOP	August 10, 2011	19:45	53° 57.9' N	130° 58.9' W	GW					2nd Engine Officer Raifaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj

Predrag Pravdica

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 9, 2011	23:50	48° 35.8' N	125° 22.3' W	TS	21.70 Knt	5224 V 242 5224 V 243 5224 V 244 5224 V 245	152.4	150.19	2nd Engine Officer Marco Ruello <i>[Signature]</i>
STOP	August 10, 2011	16:45	52° 59.6' N	130° 32.2' W	TS					2nd Engine Officer Raifaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer : Lucijan Tiganj

Predrag Pravdica

Chief Engineer's Signature: *[Signature]* Date: Aug 11, 2011
Master's Signature: *[Signature]* Date: Aug 11, 2011

Carnival Cruise Lines
SMS Env. Manual

Rev. Date 1 April 2005

Rev.00

Ship Name: DEAZIS Carnival Spirit

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 2, 2011	22:50	48° 31.1' N	124° 47.5' W	GW	22.90 Knt	7324 V 010 7324 V 022 5214 V 026 5214 V 025	521.2	430.74	2nd Engine Officer Marco Ruello <i>[Signature]</i>
STOP	August 3, 2011	19:00	53° 59.4' N	131° 01.3' W	GW					2nd Engine Officer Raffaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer: Lucijan Tiganj

Predrag Pravidica

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 2, 2011	22:50	48° 31.1' N	124° 47.5' W	GW	22.90 Knt	5214 V 025	315.3	260.57	2nd Engine Officer Marco Ruello <i>[Signature]</i>
STOP	August 3, 2011	19:00	53° 59.4' N	131° 01.3' W	GW					2nd Engine Officer Raffaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer: Lucijan Tiganj

Predrag Pravidica

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (MB)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	August 3, 2011	00:10	48° 38.0' N	125° 30.7' W	TS	20.80 Knt	5224 V 242 5224 V 243 5224 V 244 5224 V 245	116.0	120.78	2nd Engine Officer Sinisa Rosic <i>[Signature]</i>
STOP	August 3, 2011	16:10	53° 01.7' N	130° 33.3' W	TS					2nd Engine Officer Raffaele Cinque <i>[Signature]</i>

Manual Valves Operated by 3rd Engine Officer: Andrea Pascale

Chief Engineer's Signature: *[Signature]* Date: 03 Aug 2011

Master's Signature: *[Signature]* Date: 03 Aug 2011

Graywater and Blackwater Discharge Log For Ships in Alaskan Cruise Season

Rev. Date 1 April 2005

Rev.00

Ship Name: DEAZ/S Carnival Spirit

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	July 19, 2011	22:55	22° 55.0' N	124° 51.1' W	GW	22.5 Knt	7324 V 010 7324 V 022 5214 V 026 5214 V 025	924.8	761.17	2nd Engine Officer Sinisa Rosic <i>Sinisa Rosic</i>
STOP	July 20, 2011	19:10	53° 58.5' N	131° 00.0' W						2nd Engine Officer Marco Ruello <i>Marco Ruello</i>

Manual Valves Operated by 3rd Engine Officer: Andrea Pascalle Lucijan Tiganj

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	July 19, 2011	22:55	22° 55.0' N	124° 51.1' W	GW	22.5 Knt	5214 V 025	522.3	429.89	2nd Engine Officer Sinisa Rosic <i>Sinisa Rosic</i>
STOP	July 20, 2011	19:10	53° 58.5' N	131° 00.0' W						2nd Engine Officer Marco Ruello <i>Marco Ruello</i>

Manual Valves Operated by 3rd Engine Officer: Andrea Pascalle Lucijan Tiganj

DISCHARGE	DATE	TIME (24-hrs)	LAT	LON	EFFLUENT TYPE Gray / Black	Insert Min. Speed During Period of Discharge	DISCHARGE PORT (S)	VOLUME (M3)	FLOW RATE (L/MIN)	NAME OF ENGINEER IN CHARGE
START	July 20, 2011	00:30	48° 37.2' N	125° 33.2' W	TS	21.70 Knt	5224 V 242 5224 V 243 5224 V 244 5224 V 245	111.6	117.47	2nd Engine Officer Raifiasle Sinque <i>Raifiasle Sinque</i>
STOP	July 20, 2011	16:20	53° 01.6' N	130° 33.2' W						2nd Engine Officer Marco Ruello <i>Marco Ruello</i>

REMARKS: Manual Valves Operated by 3rd Engine Officer: Pedrag Pravidica Lucijan Tiganj

Chief Engineer's Signature: *[Signature]* Date: 20 July 2011

Master's Signature: *[Signature]* Date: 20 July 2011

Document Management
Doc. Name: Alaska BW GW Disch Log
Responsibility: Engine Watch Leader
Storage: Binder in Engine Control Room / C/Eng. File System
Retention: Duration of Probation. Thereafter 60 Months

Printed:
2011-07-21
02:43

Garbage Record Book
MARPOL Required For Recording Garbage Disposal At Sea And Ashore
 Ship Name **CARNIVAL SPIRIT**
 Ship IMO Number **9188647**
 Distinctive No. or Letters **3FPR9**

MARPOL Categories
 1 Plastic
 2 Floating Dunnage, Lining, or Packing Materials
 3 Ground Paper Products, Rags, Glass, Metal, Bottles, Crockery, etc.
 4 Paper Products, Rags, Glass, Metal, Bottles, Crockery, etc.
 5 Food Waste
 6 Incinerator Ash (Except From Plastic Products Which May Contain Toxic or Heavy Metal Residues)

Notes:
 THE DISCHARGE OF ANY GARBAGE OTHER THAN FOOD WASTE IS PROHIBITED IN SPECIAL AREAS. ONLY GARBAGE DISCHARGED INTO THE SEA MUST BE CATEGORIZED.
 GARBAGE OTHER THAN CATEGORY 1 DISCHARGED TO RECEPTION FACILITIES NEED ONLY BE LISTED AS A TOTAL ESTIMATED AMOUNT.

Date/ Time	Position Of The Ship (Lat/Long)	Estimated Amount Discharged Into Sea (m3)						Est. Amount Discharged to Reception Facilities or to Other Ship (m3)	Estimated Amount Incinerated (m3)	Certification/ Signature
		CAT. 2	CAT. 3	CAT. 4	CAT. 5	CAT. 6	CAT. 1 Other			
MAY 01 2011 - 1910	49° 18.2' N - 123° 33.3' W							START	[Signature]	
MAY 04 2011 - 2023	49° 21.9' N - 124° 02.2' W							1.3	[Signature]	
MAY 05 2011 - 0718	51° 01.0' N - 127° 52.6' W							START	[Signature]	
MAY 05 2011 - 0900	51° 23.6' N - 128° 32.4' W			START					[Signature]	
MAY 05 2011 - 0912	51° 27.1' N - 128° 35.3' W							4.0	[Signature]	
MAY 05 2011 - 1135	52° 11.8' N - 128° 50.2' W							START	[Signature]	
MAY 05 2011 - 2010	54° 19.8' N - 131° 07.2' W							START	[Signature]	
MAY 05 2011 - 2130	54° 22.8' N - 131° 53.9' W			START					[Signature]	
MAY 05 2011 - 2145	54° 23.3' N - 132° 03.2' W			2.2					[Signature]	
MAY 06 2011 - 0045	54° 54.6' N - 133° 24.8' W							4.5	[Signature]	
MAY 06 2011 - 0120	55° 03.5' N - 133° 38.3' W							START	[Signature]	
MAY 06 2011 - 0240	55° 44.0' N - 134° 21.3' W							1.3	[Signature]	
MAY 08 2011 - 2306	54° 47.6' N - 131° 05.9' W							START	[Signature]	
MAY 09 2011 - 0043	54° 19.5' N - 131° 06.8' W							1.7	[Signature]	
MAY 09 2011 - 0112	54° 09.3' N - 131° 05.2' W							START	[Signature]	
MAY 09 2011 - 0330	53° 41.2' N - 131° 03.5' W				START				[Signature]	
MAY 09 2011 - 0420	53° 24.1' N - 131° 01.4' W				10.0				[Signature]	
MAY 09 2011 - 1830	49° 14.6' N - 126° 52.4' W				START				[Signature]	
MAY 09 2011 - 1854	49° 09.2' N - 126° 42.2' W				0.0				[Signature]	
MAY 09 2011 - 1910	49° 03.3' N - 126° 31.0' W				START				[Signature]	

Master's Signature:  Date: MAY 11, 2011

Document Management
 Doc. Name: Garbage Record Book
 Responsibility for All Entry: Environmental Officer
 Storage: Ship Binder
 Retention: 60 Months From Master's Signature